INTRODUCTION

Bolivia, located in the center of South America, has nine departments and 337 municipalities, a land area measuring 1,098,581 km², and a population in 2010 of 10,426,154 inhabitants, as estimated by the National Statistics Institute (INE). Of this number, 66% were living in cities and 34% in rural areas. Figure 1 shows Bolivia’s population structure. Also in 2010, life expectancy at birth was 66.34 years (1) and the population growth rate was 2.24%. The total fertility rate was 3.5 children per woman, with significant urban-rural differences, and the crude birth rate was 27.1 per 1,000 population (1).

President Evo Morales began his term of office in 2006 and was reelected in 2009. A constitutional assembly wrote the New Political Constitution of the State (NCPE), which was approved in a referendum. The NCPE organizes the Government into the legislative, executive, judicial, and electoral branches.
The NCPE also recognizes 36 indigenous and ethnic nations and their respective languages (2). In recent years, Bolivia has been in a stable economic situation, with a gross domestic product (GDP) growth rate of over 4% annually. In 2007, per capita income was equivalent to US$ 4,206, which ranked it as a low-middle-income country. The flow of foreign exchange—generated mainly by exports from extractive industries—has had a favorable impact on international reserves, which tripled between 2006 and 2010, reaching nearly US$ 10,000 million. Foreign debt fell sharply between 2003 and 2007, from US$ 5,000 million to US$ 2,200 million. However, starting in 2008, foreign debt began rising at an annual average rate of 9% because of the need for loans to finance implementation of the National Development Plan. The lenders have included Venezuela and China, as well as the Andean Development Corporation (ADC), the Inter-American Development Bank, and the World Bank. New loans granted in 2010 totaled US$ 2,800 million.

1 This reduction was due to the initiative to modify a multilateral loan with the Inter-American Development Bank (IDB), the World Bank, and the International Monetary Fund (IMF).

HEALTH DETERMINANTS AND INEQUALITIES

Distribution of the revenues from Bolivia’s direct tax on hydrocarbons and from royalties has generated horizontal inequalities among the departments, as well as vertical ones among levels of government. An example of the former is seen with the departments of Pando and La Paz: per capita revenue from the hydrocarbons tax was 23 times greater in Pando than in La Paz. In the case of levels of government, a good example of the contrasts is that the General Treasury of the Nation had to resort to domestic borrowing because its 24% allocation of total revenue from the hydrocarbons tax was not sufficient to cover all the expenditures to which it was committed (3). The levels of moderate and extreme poverty began falling in 2007, dropping by more than 10 percentage points over the next two years, from 37.7% to 26.1%. With respect to extreme poverty, the country is only two points short of meeting the Millennium Development Goal (MDG) target of cutting its 1990 level in half. This progress can be attributed in part to monetary transfers from the Juancito Pinto and the Juana Azurduy de Padilla
benefits programs (4). In 2008, mortality in children under the age of 5 was 63 per 1,000 live births, down from 75 per 1,000 live births in 2003. This is further evidence of progress toward meeting the MDG goals for the country.

In the labor market, open urban unemployment fell from 7% in 2009 to 5.7% in 2010 (5). According to the Gini coefficient scale (which goes from 0 to 1), inequality in Bolivia declined from 0.59 in 2006 to 0.51 in 2009. However, high levels of inequality persist in rural areas, where the indigenous population is predominant and remains the most vulnerable group (6).

**THE ENVIRONMENT AND HUMAN SECURITY**

**Access to Clean Water and Sanitation**

According to the National Basic Sanitation Plan for 2008–2015, 74.5% of the population overall had access to drinking water in 2007 (87.5% in urban areas and 50.3% in rural areas). That same year, access to sanitation in the country was 48% (54% in urban areas and 37% in rural areas). The Plan projects that there will be 90% nationwide drinking water coverage and 80% sanitation coverage by 2015 (7). It is expected that the MDG target for access to drinking water will be achieved, but meeting the target for urban and rural sanitation will be very difficult. Less than 30% of all wastewater is treated, and this coverage is concentrated in the country’s major urban centers (8).

**Water Pollution**

Contamination of water resources is one of various complex water management problems, given the high cost and technological difficulty involved in treating domestic and industrial wastewater so that it will meet the quality standards set by the Law on the Environment. A major contributor to pollution is the mining sector. In the department of Oruro, mining contamination in four municipalities (Huanuni, Machacamarca, El Choro, and Poopó) in the Lake Poopó basin prompted the issuance of environmental emergency Supreme Decree 0335, which establishes strategies for restoration of the Huanuni basin (9).

**Climate Change**

In 2009, the “Country Profile: Institutional Framework and Progress in Climate Change and Health” was developed. The next year, an analysis of national and subnational health vulnerability to climate change (including its variability) was carried out, providing the Ministry of Health with a basis for designing and implementing adaptation measures (10).

**HEALTH CONDITIONS AND TRENDS**

**Health Problems of Specific Population Groups**

**Maternal and Reproductive Health**

According to the 2008 National Demographic and Health Survey (ENDSA 2008), 90% of women who gave birth in the five years prior to the survey received prenatal care from a physician (77%), nurse (9%), or nursing auxiliary (4%). A very small proportion (0.2%) received prenatal care from other personnel, and 10% did not have any prenatal care at all. In terms of delivery care, 71% of the women were attended by a skilled health worker—either a physician or a nurse. With regard to place, 68% of the women delivered in a health facility (57% public sector, 11% private sector) and 32% at home. After the birth of their last child, 15% of the women reported that they did not receive any postnatal care. In the most-recent deliveries that did not take place in a health facility, 46% of the mothers did not receive postnatal care. The three family planning methods most commonly used were periodic abstinence (14.1%), injection (7.4%), and the IUD (5.6%),
while 58% of the women did not use any method at all, and 14.9% used some other method (11). Of the women legally married or living in a stable union, 20.2% of them said they had unmet family planning needs (11).

Children (under 5 years old)

According to ENDSA 2008 results, acute respiratory infections affected 20% of children under 5 years old. The children most affected were infants 6 to 11 months old, with a frequency of 25.9%. That same age group was also the one treated most often in the health services, at 59.4%. With respect to diarrhea, between 2003 and 2008, cases in the two weeks prior to the survey were most frequent in the age group of 12 to 23 months, with 40.4%; the group least affected were children 2 to 5 years old, with only 4.4%. By residence, the frequency was 29.1% in rural areas and 23.6% in urban areas (11, 12). In 2008, 60% of children under 6 months old were exclusively breast-fed (11).

Adolescents (10 to 19 years old)

The group aged 10 to 19 represents 23% of the country’s total population (11). In 2008, the overall proportion of adolescent women who had had a pregnancy was 17.9%. The rate was only 4.3% for those who had had higher-level studies, but it was 32% for those with only primary education. There were also marked differences in the proportion of teen pregnancies between rural areas (25%) and urban areas (14%), and between those in the highest (31%) and lowest (7.8%) quintiles of poverty. Adolescents are one of the groups targeted for HIV/AIDS prevention. Overall, 24% of the females and 28% of the males in this population group have a comprehensive understanding of HIV/AIDS. However, these figures differ sharply according to educational level. Only 8.7% of the women who have just a primary education have that comprehensive understanding, versus 49.9% of adolescent women who have had higher education. Young people’s knowledge about HIV/AIDS is greater in urban areas (11).

Older Adults (60 years old and over)

In 2010, Bolivia had 721,039 older adults. They represented 6.9% of the total national population, with an aging index of 20.09 (13). Older adults have lower incomes than the other age groups. Further, 20.7% of them do not receive any income, which means that one in five older adults must depend financially on others. The remaining 79.3% receive income from various sources, including work that they do, interest on savings, and contributory pensions, as well as the universal noncontributory Dignity Pension. The incidence of poverty in this group is elevated, with 34.5% of the people aged 60 and over being below the poverty line and another 37.2% living in absolute poverty (14). Low social security coverage has forced people aged 60 and over to continue working. In 2010, there were 205,363 people who were covered by the Health Insurance for Older Adults (SSPAM) program, but that only represented 28.48% of that age group. Of the country’s 337 municipalities, 312 have implemented SSPAM (92.58%) (15).

The Family

According to ENDSA 2008, 22.9% of the households in the country are headed by a woman. However, this proportion could be underestimated for reasons that are more cultural than economic. In one of every 10 households there are children under 18 years old but with both parents absent (11).

Workers

Occupational health has been a neglected field in recent decades, giving rise to troubling conditions, especially in the mining, transportation, construction, and agriculture sectors. On the other hand, there has been progress in resolving health issues related to pesticide use and abuse, including implementation of a tool called Epidemiological Surveillance of Pesticide Poisoning (SVEIAPS) within the structure of the National Health Information System (SNIS). Many occupational diseases are incorrectly diagnosed, and the SNIS
does not collect information on work-related injuries or occupational illnesses (16).

Ethnic or Racial Groups

During the 2010, the SNIS added the following ethnicity-related variables to the clinical history form: language spoken, mother tongue, and cultural self-identification. These variables will make it possible to generate health indicators for populations of indigenous and African descent.

Other Groups

Disabled Persons

In 2010, the country had an estimated 82,100 persons with disabilities (50.3% males and 49.7% females) (17). In the period from 2008 to June 2010, the proportional distribution by type of disability was physical (35.9%), intellectual (29.6%), sensory (12.6%), and multiple (21.9%). In terms of degree of disability, the proportional distribution was moderate (33.5%), serious (34.8%), and severe (31.7%). The highest proportion of disabilities (52%) was in the group 21 to 59 years old (18).

Mortality

According to the National Statistics Institute (INE), the crude death rate in Bolivia in the 2005–2010 period was 7.29 deaths per 1,000 population. In 2008, the country still had one of the highest rates of infant mortality in Latin America, even though between 2003 and 2008 the reported deaths in children under 1 year per 1,000 live births declined from 54 to 50. This latter figure includes neonatal mortality, which, at 27 per 1,000 live births, represented more than 50% of all infant mortality and 42.8% of all mortality in children under 5 years old, for whom the mortality rate was 63 per 1,000 live births. Infant mortality was 36 per 1,000 live births in urban areas and 67 per 1,000 in rural areas, while the rate in children under 5 years old was 43 per 1,000 live births in urban areas and 87 per 1,000 in rural areas (12). The estimated maternal mortality rate for the 2003–2008 period was 310 deaths per 100,000 live births, according to ENDSA 2008 (11).

Morbidity

Communicable Diseases

Vector-borne Diseases

In 2009, Bolivia experienced the largest epidemic of dengue that it had had since the 1980s (Table 1). It affected 130 of the country’s municipalities, with reported totals of over 84,000 suspected cases, of 7,421 confirmed cases, and of 25 deaths from severe dengue. Two-thirds of all cases and 69% of the deaths occurred in the department of Santa Cruz. In 2010, with sporadic outbreaks in just 12 municipalities, there was a 93% drop in the number of cases relative to 2009. In addition, only 4 deaths were reported (Table 1) (19).

In 2006, Bolivia enacted Law 3,374 on Chagas’ disease, which led to vector control measures in the 168 municipalities where the disease is endemic. In 2007, the average national Trypanosoma cruzi infestation index dropped from 55% to a residual figure of 3.2% (20). Between 2003 and 2010, the department of La Paz lowered its infestation index inside homes from 45.4% to 0.4%, and its infestation index around homes from 46% to 0.9% (21). In June 2011, the International Commission on the Evaluation of Chagas’ Disease Infestation declared that vector-borne transmission of Trypanosoma cruzi and Triatoma infestans in the department of La Paz had been interrupted (22).

<table>
<thead>
<tr>
<th>Year</th>
<th>Suspected cases</th>
<th>Confirmed cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2,225</td>
<td>583</td>
<td>…</td>
</tr>
<tr>
<td>2007</td>
<td>7,332</td>
<td>2,186</td>
<td>…</td>
</tr>
<tr>
<td>2008</td>
<td>7,807</td>
<td>2,212</td>
<td>…</td>
</tr>
<tr>
<td>2009</td>
<td>84,047</td>
<td>7,421</td>
<td>25</td>
</tr>
<tr>
<td>2010</td>
<td>6,575</td>
<td>1,093</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Reference (19).
Between 2006 and 2010, malaria cases were reduced by 27% (Table 2) (23). In 2010, 77% of the confirmed cases of malaria (10,062 of 13,769) came from the Amazon area of the country, which includes all the municipalities of the department of Pando, the municipalities of Riberalta and Guayaramerín in the department of Beni, and the municipality of Ixiamas in the department of La Paz (24). Just four municipalities (Guayaramerín, Sena, Riberalta, and Santos Mercado) accounted for more than 75% (7,952 of 10,062) of the Amazonian cases. Also in 2010, 9% of all cases in the country were attributed to Plasmodium falciparum, and 99% of these came from the Amazon area; urban malaria was only reported in the municipality of Guayaramerín. No deaths attributed to malaria were reported during the period. On the other hand, there were more cases in 2010 than in 2009. This change could be due to greater access to diagnosis and treatment and improvements in the quality of the reporting system (25).

Bolivia reduced malaria cases by 56% between 2000 and 2010. This satisfactorily met the goal of the Roll Back Malaria Initiative to decrease the disease burden by at least 50% by 2010, and indicates strong progress toward the MDG target to have halted and begun to reverse the incidence of malaria by 2015.

These good results were due mainly to the introduction of artemisinin-based combination therapy (ACT) and to the large-scale use of insecticide-impregnated mosquito nets (26).

In 2010, a total of 1,810 cases of cutaneous or mucocutaneous leishmaniasis were diagnosed in seven of the country’s nine departments, for a rate of 17.36 per 100,000 population. The department of La Paz recorded 863 cases, distributed across 20 municipalities, with 55% of the cases concentrated in three municipalities and 85% in communities of fewer than 1,000 inhabitants (27). Unofficial reports indicate the presence of visceral leishmaniasis in the province of Germán Busch, which is in the department of Santa Cruz.

Vaccine-preventable Diseases

Since 2006, the number of vaccines offered by the national program has increased from 11 to 13. In 2011, vaccines were given against rotavirus-type diarrheal disease, poliomyelitis, tuberculosis, diphtheria, whooping cough, tetanus, hepatitis B, Haemophilus influenzae type b, measles, rubella, mumps, and yellow fever. Adult populations at risk are also included in the yellow fever vaccination effort, and a booster against diphtheria and tetanus is given to women and men from 15 to 39 years old. Vaccines against seasonal influenza, including both the seasonal virus strains and influenza A(H1N1), are now part of the regular series.

In addition, the human papillomavirus vaccine was introduced as a pilot experiment for girls 9 to 13 years old, and financial assistance was requested and obtained to introduce the pneumococcal vaccine by 2013. In 2010, the following coverage levels were achieved: 90.4% for BCG; 80% for the third dose against poliomyelitis; 80.4% for the third dose of the pentavalent vaccine; and 79.4% for the triple viral vaccine given to children 12 to 23 months old. During the five-year period of 2006–2010, the rate of acute flaccid paralysis in children and youths under 15 ranged from 1.05 to 1.08 per 100,000, with a rise beginning in 2007. In the same period, more than 98% of the suspected cases of measles/rubella were investigated within 48 hours. Since 2001, there have been no confirmed cases of measles. The last follow-up vaccination campaign, conducted in 2007, achieved coverage in excess of 95% in all the municipalities of the country. The measles/rubella vaccine was used. The country’s last case of rubella was found in week 3 of 2006. Since that year, an

### TABLE 2. Number of malaria cases, Bolivia, 2006–2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>P. falciparum</th>
<th>P. vivax</th>
<th>Total cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1,783</td>
<td>17,210</td>
<td>18,993</td>
</tr>
<tr>
<td>2007</td>
<td>1,622</td>
<td>12,962</td>
<td>14,584</td>
</tr>
<tr>
<td>2008</td>
<td>836</td>
<td>8,912</td>
<td>9,748</td>
</tr>
<tr>
<td>2009</td>
<td>680</td>
<td>9,063</td>
<td>9,743</td>
</tr>
<tr>
<td>2010</td>
<td>1,200</td>
<td>12,569</td>
<td>13,769</td>
</tr>
</tbody>
</table>

*Source: Reference (23).*
average of one or two cases of neonatal tetanus has been reported per year. Cases of yellow fever have fallen drastically. A national vaccination campaign against yellow fever was conducted in May 2007, with a goal of reaching 4,750,250 people between 2 and 44 years of age, and 85.6% coverage was achieved (evaluated with a survey using a procedure recommended by the WHO Expanded Program on Immunization, the cluster lot quality assurance sampling [LQAS] methodology) (27).

Whooping cough surveillance has not been implemented in the country, but laboratory diagnosis has improved. Although no suspected cases of diphtheria have been reported in the country since 2004, four cases of this disease were confirmed between May and August 2010 in the departments of Tarija and La Paz. In October 2005, sentinel surveillance of severe cases of diarrheal disease caused by rotavirus was begun in hospitalized children under the age of 5 years.

Zoonoses

A rabies control plan that the Ministry of Health and Sports introduced in 2006 had, by 2010, succeeded in substantially reducing the incidence of human and canine rabies (28). However, by the second week of October 2011, the number of human cases had increased, with two deaths in the city of Cochabamba and one in the city of Sucre. In addition, 205 cases of canine rabies were recorded in the country. These numbers, which are comparable to ones in 2008, prompted the Ministry of Health to strengthen and step up its measures to control this zoonosis.

In 2010, a study on hydatidosis was conducted in a community in the department of Potosí. Of 1,268 sonogram tests, 4.1% were positive, and 23.9% of 264 fecal samples from dogs were also positive (29). A total of 22 cases of hantavirus infection were recorded in the country in 2009, with 4 deaths and a case-fatality rate of 18%. The following year, there were 14 reported cases and 4 deaths, for a case-fatality rate of 28%. The cases were reported in the departments of Cochabamba, Santa Cruz, and Tarija (30). There were 49 cases of leptospirosis in 2010, in seven departments of the country (31).

Neglected Diseases and Other Infections Related to Poverty

Bolivian hemorrhagic fever caused the deaths of four people in 2006, two people in 2007, and three more people between 2008 and 2010. The deaths occurred in the disease’s endemic area, in the department of Beni (32). A study of geohelminth infection conducted in a Guarani population in the Chaco region showed that 84% of the 491 people tested were positive. The parasites diagnosed were Blastocystis hominis, Hymenolepis nana, Ascaris lumbricoides, and Strongyloides stercoralis (33).

HIV/AIDS and Other Sexually-transmitted Infections

The HIV/AIDS epidemic in Bolivia is concentrated in vulnerable groups, including gays, bisexuals, and transvestites (GBTs); men who have sex with other men (MSM); and the socioeconomically disadvantaged population. The prevalence in the GBT/MSM population is 12.7%, and in sex workers it is 0.4%. There were 6,176 cases recorded in 2010, and the prevalence in the general population was 0.05%, equivalent to 59 cases per 100,000 population. According to estimates reported by the National Program on STI/HIV/AIDS (34), there were approximately 12,000 people living with HIV/AIDS in the country in 2010. In the population aged 20 to 24 years, prevalence was estimated at 0.02%, while in pregnant women who had undergone HIV testing, it was 0.16%. A large majority (89%) of the cases detected were in three departments of the country. The male/female ratio was 2 to 1, and 6 of every 10 people with HIV/AIDS were between 15 and 34 years old. The registry of HIV/AIDS cases has shown a gradual rise, although the change is probably influenced by improved reporting and the increasing use of rapid HIV testing (34).

In 2008, the services for sexually-transmitted infections reported that morbidity from syphilis and genital ulcers combined was 43.7 per 100,000 population (35). In turn, the Reference Centers for Epidemiological Surveillance reported the following rates for STIs in 2007: chlamydia (10.5%), trichomoniasis (4.6%), syphilis (2.6%), and gonorrhea (0.5%). Congenital syphilis infection is an important
public health problem and, according to a 2004 study by the Population Council, it affects 7.2% of pregnant women and 11 of every 1,000 live newborns (36).

Tuberculosis

Tuberculosis continues to be a public health problem. The incidence of tuberculosis in all its forms was 76.1 per 100,000 population, while the rate for the pulmonary form was 59.9 per 100,000. Diagnosis of pulmonary cases based on positive sputum-smear microscopy (AFB+) fell from 80.1 per 100,000 population in 2001 to 53.8 in 2010 (37). This decline could be influenced in part by under-reporting and low case detection. The departments of Santa Cruz, Pando, Tarija, and Beni have had cumulative incidence rates of AFB+ TB that are higher than the national average. Of the total number of tuberculosis cases in all forms of the disease, 81.29% were pulmonary and of these, 70.5% were AFB+. The highest cumulative incidence rates were found, by gender, in male patients and, by age, in persons over 55 years old and in ones 15 to 25 years old. These patterns indicate that there is ongoing TB transmission in the community. Studies have shown that the level of general resistance is 16.2%. In 2008, the incidence of AFB+ pulmonary TB in penitentiaries nationwide was 437 per 100,000 prisoners (37). Collaborative measures between national tuberculosis and HIV programs were recently initiated in order to learn the extent of coinfection. In 2009, 51% of the patients recognized to have HIV/TB coinfection were treated.

Intestinal Diseases

In 2006, a pilot program was developed to treat fascioliasis through the massive use of triclabendazole (TCZ). Applied in 2008 in an Aymara community in the Altiplano north of La Paz, the effort demonstrated that using TCZ in populations with a high burden of fasciola is safe. Mass dewormings were begun in 2008, reaching 71,456 people that year, 223,946 people in 2009, and 106,936 people in 2010 (38).

Food-borne Illnesses

In 2010, the presence of Shiga-toxin-producing Escherichia coli, which is responsible for hemolytic uremic syndrome, was detected in 53 food samples collected in the departments of La Paz and Tarija (39).

Chronic, Noncommunicable Diseases

According to data from the SNIS for 2010 (16), 60% of the services delivered by the public health care system focused on treating chronic, noncommunicable diseases. These included cardiovascular diseases, diabetes, neoplasms, and musculoskeletal diseases; some of their risk factors such as overweight, obesity, and tobacco use; and mental health and priority neurological disorders, including depressive episodes, anxiety, and epilepsy, as well as disorders resulting from the use of alcohol and psychotropic substances.

Cardiovascular Diseases

Of persons over 20 years of age seen in urban and rural hospitals in Bolivia, 49.2% of them had some degree of hypertension (40).

Malignant Neoplasms

According to ENDSA 2008, among malignant neoplasms, cervical cancer had one of the highest rates of prevalence (22 cases per 100,000 population). The rate for cancers of the digestive organs was 4.6 per 100,000, and for cancers related to male genital organs, 3.5 per 100,000. Mortality from neoplasms was 57.4 per 100,000 population for men and 89.7 for women (41). During the first six months of 2011, the SNIS recorded 1,956 cases of cervical cancer, along with 6,125 cases of other types of cancer (2,302 in men and 3,823 in women) (16). Also according to the SNIS, 336,644 women took the Papanicolaou test in 2009. The figure in 2010 was 344,893, with 54% of them being performed by the public sector, 19% by nongovernmental organizations, 17% by social security, 6% by churches, and 4% by the private sector and armed forces (16).
Diabetes

With regard to diabetes in this group, the prevalence of fasting hyperglycemia (126 mg/dl or higher) was 7.3% (40).

Nutritional Diseases

In 2008, the prevalence of chronic malnutrition in children under 5 years of age was 27.1%, down 5 percentage points from 2003. Among these children, chronic malnutrition tended to increase with age, starting with a rate of 9.4% for the group up to 6 months old and increasing to 35.4% in those 24 to 35 months old. The prevalence of low height-for-age was 38.6% in children in rural areas, compared to 17.2% in urban children. Similarly, the prevalence of low height-for-age among children of mothers with less schooling was 50.9%, versus only 9.2% among those whose mothers had more schooling. In addition, in the quintile of the population with the greatest poverty, the prevalence of chronic malnutrition in children under 5 was 46%, and in the quintile with the least poverty, it was only 6.5% (11, 12).

Between 2003 and 2008, the prevalence of anemia increased from 51% to 61.3%. In 2008, the rate was 83.1% in children from 12 to 17 months old and 53.6% in children aged 2 to 5 years. The prevalence in rural children was higher (67.6%) than in children in urban areas (55.7%) (11). The frequency of anemia was confirmed to be higher in populations with low educational status and in the highest quintiles of poverty. For women of childbearing age (15 to 49 years), the prevalence of anemia rose from 33.1% in 2003 to 38.3% in 2008 (11, 12). Nearly half (49.7%) the population was overweight or obese, while only 48.3% had a body mass index (BMI) within normal limits, and only 2% had a BMI that was below normal (11).

Accidents and Violence

The frequency of accidents has been on the rise in recent years. In 2005, the rate of injuries caused by transit accidents was 117 per 100,000 population, and in 2009 the figure was 126 per 100,000 (42). Violence in all its forms is a serious public health problem. According to data from the Bolivian Police, homicide rates went from 5.4 per 100,000 population in 2006 to 8.7 per 100,000 in 2010 (43). The most frequent kinds of violence were abuse of minors and domestic violence. According to data from ENDSA 2008, almost half (47%) of all women who were married or living in a stable union were victims of some form of violence caused by their partner or another person. Only 9% of the victims sought institutional assistance. Psychological violence had been used against 40% of women 15 to 49 years old, and physical or sexual violence against 24% of them. The rate of violent sexual crimes against adolescents was 14.69 per 100,000 population; females were eight times more likely to be victims than were males (11).

Disasters

During the 2006–2011 period, Bolivia experienced floods, landslides, droughts, heavy snows, hurricane winds, hailstorms, forest fires, and social conflicts. Floods and social conflicts took the greatest toll in lives (135) and affected 238,530 families. Between 2006 and 2010, flooding occurred mostly in the departments of Beni, Santa Cruz, Cochabamba, and La Paz. These seriously strained the health system, as well as departmental and municipal governments, and called attention to their weaknesses in responding to emergencies (44). The February 2011 mega-landslide in La Paz damaged or destroyed the homes of some 2,000 families, of whom 970 were still housed in shelters by October of that year.

Mental Disorders

Bolivia lacks a mental health policy and specific laws on the subject (45). In 2008, mental health received around 0.2% of the health budget. Mood disorders accounted for 17% of outpatient consultations. In psychiatric hospitals, 29% of the cases had diagnoses of schizophrenia, schizotypal disorders, and delirium. The population under age 18 received between 3% and 3.5% of the care, depending on the health center. Less than 7% of the primary health
care staff have received at least two days of training in subjects relating to mental health (45).

**Other Health Problems**

**Oral Health**

Preventive actions, including fluoridation and application of sealants and cariostatics, reached 12.64% of the population between 2006 and 2010 (46).

**Risk and Protection Factors**

According to studies, 35% of the general population smoke cigarettes. In university populations, 83% smoked at some time in their life (90.3% men, 75% women). Although current legislation prohibits smoking in enclosed public spaces, enforcement is still in its early stages (47). For alcohol use, the lifetime prevalence is 67.83% in the population 12 to 50 years old (74.65% in men and 62.71% in women) (48).

**Illegal Drugs**

Mental health disorders due to substance abuse affected 4.93% of the Bolivian population. The most common substances used were marijuana, cocaine, inhalants, and hallucinogens (49).

**HEALTH POLICIES, THE HEALTH SYSTEM, AND SOCIAL PROTECTION**

**The Health System’s Performance**

In 2008, the social security subsector covered 30.58% of the country’s population. An estimated 11.8% of the population is covered by the public subsector. Thus, about 42.38% of the population is covered by social security or some form of public health insurance (50). The national health system is divided into six subsectors: public, armed forces, social security (funds and health insurance), nongovernmental organizations, churches, and private agencies.

The health system continues to be characterized by fragmentation, segmentation, lack of articulation, inequity, and lack of solidarity (50). It is the intent of the proposed Unified Health System (SUS) to guarantee the right to health and universal and free access to its services by all inhabitants in the country. The Unified Health System would be comprehensive, intersectoral, equitable, collective, intercultural, and participatory. Also, it would have social control, offer quality services, and include traditional medicine (51).

**Health Legislation**

Universal Maternal and Child Insurance (SUMI) was established in 2003, with the aim of reducing maternal and child morbidity and mortality. This was to be achieved by granting benefits to women during pregnancy and for six months post-delivery, as well as to children under 5 years of age. In 2005, SUMI expanded its coverage to non-pregnant women under 60 years old and women of child-bearing age (52, 53). In 2006, the Health Insurance for Older Adults (SSPAM) program was created, for the population over 60 years of age. It is administered by the municipal governments, which assess an annual premium of US$ 56 per beneficiary (52). The new Constitution establishes that access to health, education, and other basic services are basic rights (2).

In this context, there is an agenda that includes the Framework Law on Autonomy and Decentralization, the Law on Education, and the Law against Racism and All Forms of Discrimination, as well as the National Development Plan (PND): Bolivia: Honorable, Sovereign, Productive, Democratic, and Committed to Living Well, 2006–2011. The Plan proposes policy guidelines and includes plans for all the sectors. The health sector comes under the pillar of Honorable Bolivia (Bolivia Digna), and its objective is to eliminate household and social exclusion through the Unified Family, Community and Intercultural Health System (SAFCI). SAFCI incorporates traditional medicine and sets out five key policies: (1) a unified intercultural and community health system, (2) leadership, (3) social mobilization, (4) health
promotion, and (5) solidarity (54). SAFCI’s guiding principles are the centerpiece for all health sector policies. Among the goals of SAFCI are eliminating social exclusion in health; intensifying social participation in health management; integrating the services with people, families, and communities; and giving renewed value to traditional medicine, thus helping improve living conditions for all people (55). At the end of 2009, the “Toward Universal Health” Sectoral Development Plan 2010–2020 was designed around three strategic policies: (1) universal access to SAFCI, (2) health promotion within the framework of SAFCI, and (3) sovereignty and leadership within the SAFCI setting (56). Two laws, the General Law on Health and the Law on the Unified Health System, have been proposed, in order to regulate development of the sector in the coming years.

**Health Expenditures and Financing**

In management year 2008, total expenditure on health came to US$ 764 million (based on the average 2008 exchange rate of Bs.7.67 to US$ 1.00). This figure represented 4.62% of the country’s GDP and a health expenditure per inhabitant of US$ 76. Public spending on health in 2008 amounted to 1.78% of GDP; social security accounted for 1.31%; and private health expenditure, including out-of-pocket expenditure, 1.53% (50). The SUMI and the SSPAM were financed with funds from the municipal governments, the former with 10% of the revenue from Popular Participation (tax sharing with municipalities) and the latter with municipal resources, including the direct tax on hydrocarbons. The municipal governments assumed responsibility for expenditures on basic services, maintenance, and the infrastructure of health facilities (53).

In 2007, the departments of Beni and Tarija created Autonomous Basic Health Insurance (SUSA) (57) and Tarija Universal Health Insurance (SUSAT), respectively, financed with resources from autonomous departmental government funds (58). With enactment of the Framework Law on Autonomies and Decentralization, the departmental governments have taken over responsibility for the health infrastructure and for adequate maintenance of third-level hospitals, while the municipalities are responsible for first- and second-level health establishments.

**Human Resource Development Policies**

According to the SNIS, there were a total of 26,180 health workers on the rosters in 2009. By subsectors, the breakdown was: 11,241 professionals; 1,459 technical personnel; 7,817 auxiliaries; 2,538 administrative personnel; and 3,125 service support employees. At the national level, for every 10,000 inhabitants, there were 4.58 physicians, 0.93 dentists, and 2.19 nurses. For every 10 physicians there were 4.82 nurses; for each physician, there were 1.32 nursing auxiliaries (32).

Also in 2009, social security had 1.1 physicians, 0.1 dentists, 1.6 nurses, and 0.98 nursing auxiliaries for every 1,000 members. The Ministry of Health and Sports, through Ministerial Resolution 1,233 of 2009, adopted a human resources development policy that covers three areas: administration and management; health education (continuing education, undergraduate and graduate education, and in-service education for personnel already in practice); and human resources research.

**The Health Services**

**Intersectoral Action**

The Zero Malnutrition program was launched in 2007, with the goal of eradicating malnutrition in children. It incorporated the Integrated Management of Childhood Illness (IMCI) program. In 2009 the Juana Azurduy de Padilla benefits program was established to promote safe motherhood and the comprehensive development of children under 2 years of age, with the goal of reducing maternal and child deaths, as well as chronic malnutrition in children under 2 (56).
Pharmaceuticals and Health Technology

Article 41 of the new Constitution establishes that the State will guarantee the people’s access to medicines and that it will give priority to generic drugs, pointing out that access to essential drugs cannot be impeded by intellectual property rights. Supreme Decree 1,008 of 2011 created a drug procurement mechanism based on the National List of Essential Drugs. The processes of drug monitoring and control were strengthened, along with such strategies as the georeferencing of pharmacies, within the framework of the program for Good Governance of Medicines in the public sector, which establishes an ethical framework and code of conduct for pharmaceutical regulation. In this area, the Laboratory for Quality Control of Medicines and Toxicology (CONCAMYT) has been prequalified by WHO as a reference laboratory for the Region of the Americas.

KNOCKLEDGE, TECHNOLOGY, INFORMATION, AND HUMAN RESOURCE MANAGEMENT

Scientific Production in Health

The Ministry of Health and Sports has taken steps to create a Multinational Health Research System (SIPLIS), and it has adopted an agenda for domestic health research priorities (59). In addition, the National Committee on Bioethics and the National Committee on Ethics in Research have been reestablished.

Health Information Management

A program on Information, Knowledge, and Communication Management was created, with the aim of bridging the gap between knowledge generation and access to information. Bolivia’s entrance into the SciELO network (60) is the result of a joint effort by a number of Bolivian and international academic and health institutions, including the Vice-Ministry of Science and Technology, San Andrés University, the Program for Strategic Research in Bolivia, the Bolivian Catholic University, the Bolivian Association of Publishers of Biomedical Journals, PAHO/WHO, and the Latin American and Caribbean Center on Health Sciences Information (BIREME/PAHO/WHO). Bolivia is the sixteenth country to enter the SciELO network, and it participates with 15 scientific journals. The SciELO network’s node in Bolivia is coordinated by the Vice-Ministry of Science and Technology, and it has a National Advisory Committee comprised of four scientific editors, four research-supporting institutions, and an operational center located at San Andrés University in La Paz.

In addition, the Ministry of Health and Sports has created a virtual library on public health and related topics, with the participation of public and private institutions, public and private universities, hospitals, NGOs, international agencies, professional associations, scientific societies, and other institutions involved in the public health field. Currently, 140 institutions participate in the virtual health library as cooperating centers, depending on the subject matter. The library collection includes some 300,000 electronic records and 20,000 full-text documents, as well as other sources such as news reports, directories, event listings, multimedia presentations, and a collection of photographs.

Creation of the Vice-Ministry of Science and Technology was an important milestone. Its activities are spelled out in the National Science and Technology Plan, which in turn is part of the National Development Plan. Regulation of the National Health Research System is a building block in the Technology Management and Research Project, which includes processes for diagnosing research needs, dissemination of research in the health system, health research promotion and production, and education and training of human resources for health research. Similarly, the national system promotes the strengthening of entities to analyze research findings. The Ministry of Health and Sports has taken the lead in setting priorities for health research, and it promotes the integration of research findings, action, and improvements in
health policies and programs, based on a perspective of equity and solidarity, in order to meet the needs of vulnerable population groups. After being registered and analyzed, scientific and technical works are published in the LILACS databases; between 2003 and 2009, 1,100 publications were cataloged.

HEALTH AND INTERNATIONAL COOPERATION

Bolivia is going through a process of change that is affecting the organization of international cooperation, both multilateral through the United Nations system and bilateral with various countries that are contributing to the development of health. This group of partners works with the national authorities on constructing an expanded, sector-wide approach.

A group of United Nations agencies, funds, and programs have been participating in the United Nations Development Assistance Framework (UNDAF) 2008–2012, and the program for 2013–2017 is awaiting approval. The activities are organized into four major fields and outcome areas: (1) civil and political rights, which includes strengthening the multinational State and the intercultural society at the autonomous national level; (2) social and cultural rights, including substantial progress toward universal access and the quality of education, health, and social welfare at the different stages of life, as well as nutrition and feeding; (3) economic rights, within a plural, sustainable economy with livelihoods adequate for all; and (4) environmental rights, including protecting nature and reducing disaster risks.

The country has three health projects for 2009–2014 that have support from the Global Fund to Fight AIDS, Tuberculosis, and Malaria, with funding totaling US$ 17,296,037 ($). United Nations agencies are conducting several joint programs, with resources from the MDG Achievement Fund (MDG-F) and the Spanish Agency for International Development Cooperation (AECID)/UNDP. One health program of special note aims to strengthen local response capacity having to do with children, food security, and nutrition. Called the Multisectoral Zero Malnutrition Program (PMDC), it has participation from UNFPA, WFP, FAO, UNICEF, UNIDO, and PAHO/WHO, with funding totaling US$ 7,015,733. In addition, an agreement was recently signed with USAID for the Health System Strengthening (FORTALESSA) program, to be carried out by PAHO/WHO over the 2011–2016 period. Of the total funding of US$ 5,117,647, USAID will contribute US$ 4,350,000 and PAHO/WHO, US$ 767,647. In addition, UNICEF will contribute US$ 21,135,850, of which USAID will provide US$ 18,379,000 and UNICEF, US$ 2,756,850.

SYNTHESIS AND PROSPECTS

Bolivia is a country immersed in a process of political, social, and economic change that began in 2006, and it has also been exposed to repeated natural disasters related to climate change. In the field of health, it is looking forward to progress under the constitutional commitment to set up a Unified Health System that promotes healthy lifestyles and offers universal preventive and curative care for the population. The growing prevalence of chronic, noncommunicable diseases demands a care model that focuses on health promotion and on prevention, with the aim of eliminating risk factors and improving the country’s social determinants. The SAFCI policy promoted by the current Government is expected to be a particularly important tool in moving forward in this area.

Another recently initiated element that must receive attention in the immediate future is the approach to the care continuum across the life course. The country has made important progress in the technical design of integrated care for adolescents, women of childbearing age, pregnant women, newborns, and children under 5 that is intended to improve the timeliness, coverage, and quality of care. The aim is to increase the demand for preconception, prenatal, delivery, and postnatal care for mothers and to improve the care of newborns and children, thus helping to reduce differences and inequities in exercising the right to health.
Another priority are measures to strengthen the public health service networks and to functionally incorporate the other providers of short-term social security under the leadership of the Ministry of Health and Sports. It is essential to continue to make progress in consolidating and strengthening the National Health Information System (SNIS) and to move forward in establishing a health career path that institutionalizes positions and prevents constant turnover of personnel, as a way to bridge the gap in the distribution of human resources between urban and rural areas.

Finally, financing for health should be substantially increased. In addition, mechanisms should be found to combine the resources of the Ministry of Health with those of social security, the departments and municipalities, the SUMI, the SSPAM (older adults), and the monetary transfers benefits programs, in order to make their use more efficient and effective. In this way, Bolivia will be able to increase—even if just gradually—health care coverage to the entire population and to achieve the expansion of services coverage through increased solidarity, equity, and financial sustainability of the Unified Health System.

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